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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/567,617	08/21/2006	Andreas Huber	10191/4140	2019

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EXAMINER	
DOUGHERTY, THOMAS M	

ART UNIT	PAPER NUMBER
2834	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/567,617

Applicant(s)

HUBER ET AL.

Examiner

Thomas M. Dougherty

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>206</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because the handwritten voltage names are indistinct. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 7-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. How the various voltages are set is not clear. The specification notes U_{control} and $\Delta U_{\text{setpoint}}$. These values appear entirely arbitrary. The specification notes that $U_{\text{setpointcorr}}$ and U_{control} are compared at page 8, lines 6-10 to determine whether or not they conform. If so then circuit 370 enables the PI controllers. However no such ability to determine the conformity is possible in figure 3. In that figure U_{cutoff} and U_{control} are compared at an unreferenced (no number) switching point. No such comparison of $U_{\text{setpointcorr}}$ and U_{control} exists and no input to the printed logic circuit

(370) of such a comparison exists to cause the enablement of the PI controllers. The result is that a routineer in the art would not understand the invention based on the claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 7-12, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Rueger et al. (EP 1138909). Rueger et al. show a method for determining an activation voltage of a piezoelectric actuator of at least one injector (1000) which is used to inject a liquid volume under high pressure into a cavity, the method comprising: varying the activation voltage as a function of a pressure used to pressurize the liquid volume (paragraph 20); and controlling a drift of the activation voltage required for a predefined lift of a control valve of the injector on an injector-specific basis by controlling a difference between a cutoff-voltage threshold and a final steady-state voltage to a setpoint value, as that is best understood, predefined for one operating point (t1 in fig. 8). See also paragraph 88.

The liquid volume is injected into a combustion chamber of an internal combustion engine. See ABSTRACT.

As best understood, the control is carried out during one driving cycle of a vehicle having the internal combustion engine, and further comprising storing correction values

(note storage of values in RAM 810, called target values) ascertained during the driving cycle in a non-volatile memory.

The correction values stored in the non-volatile memory are used in a later driving cycle as initialization values for a control in the later driving cycle. See paragraphs 71-74.

The method further comprising enabling the control (control unit D in fig. 4 in conjunction with activation IC E) as a function of parameters (e.g. 610) characterizing at least one of the internal combustion engine and the injector.

The enabling takes place as a function of at least one of the following parameters: a temperature of the internal combustion engine, a common-rail pressure, a steady state of a charging time control, a steady state of a voltage control, an activation duration, a number of injections, an injection sequence, and a system deviation of secondary control devices.

The control is ascertained at various operating points, and further comprising storing correction values in correction characteristics maps, as best understood.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The remaining prior art cited reads on aspects of the claimed invention as it is best understood.

Direct inquiry to Examiner Dougherty at (571) 272-2022.

tmd
tmd

October 24, 2007

Thomas M. Dougherty
TOM DOUGHERTY
PRIMARY EXAMINER